IN THE CLAIMS:

1   1. (Original) A method for uniformly distributing data transmitted by a server over a plu-

2   rality of underlying links of an aggregate within a computer network, the method com-

3   prising the steps of:

4   defining a unit of data as a datagram;

5   apportioning each datagram into at least one fragment at the server;

6   associating each fragment to an underlying link of the aggregate on the basis of an

7   Internet protocol (IP) identifier (ID) of each datagram and a number of active links of the

8   aggregate; and

9   transmitting the fragment over its associated underlying link from the server to the

10   computer network.

1   2. (Original) The method of Claim 1 wherein the step of associating comprises the step of

2   producing a result representing a remainder upon dividing the IP ID by the number of

3   active links.

1   3. (Original) The method of Claim 2 wherein the step of associating further comprises the

2   steps of:

3   calculating the IP ID of each datagram in a sequential manner; and

4   rotating the fragments of each datagram among all the underlying links to thereby

5   ensure that all fragments having the same IP ID are provided to the same physical link of

6   the aggregate.

1   4. (Original) The method of Claim 1 wherein the step of associating comprises the steps

2   of:

3   logically combining the IP ID with a predetermined mask to produce a quantity;

4   right shifting the quantity a predetermined number of places; and

5   establishing a threshold at which a group of data is forwarded to each underlying

6   link of the aggregate.

1   5. (Original) The method of Claim 4 wherein the step of associating further comprises the

2   step of producing a result representing a remainder upon dividing the right shifted logi-

3   cally combined quantity IP ID and predetermined mask by the number of active links.

1   6. (Original) The method of Claim 5 wherein the IP ID is a 16-bit value, the predeter-

2   mined mask is 0xFF80 and predetermined number of right shifted places is 7, and

3   wherein the group of data comprises 128 IP IDs.

1   7. (Original) The method of Claim 6 wherein the group of data comprises one of 128 dif-

2   ferent transport control protocol (TCP) fragments and 128 different user datagram proto-

3   col (UDP) datagrams.

1   8. (Original) The method of Claim 7 wherein each UDP datagram comprises up to 23

2   fragments.

1   9. (Original) The method of Claim 1 further comprising the steps of:

2   loading at least one data buffer of the server with the at least one fragment;

3   fetching the fragment from the data buffer; and

4   loading at least one queue of the server with the fragment, the queue associated

5   with the underlying link.

1   10. (Original) A system adapted to uniformly distributing data over a plurality of underly-

2   ing links of an aggregate within a computer network, the system comprising:

3   a processor;

4   a memory coupled to the processor and having locations addressable by the proc-

5   essor;

6   an operating system resident in the memory locations and executed by the proces-

7   sor, the operating system configured to implement a modified load balancing technique

8   that defines a unit of data as a datagram, the operating system comprising an Internet Pro-

9   tocol (IP) layer that apportions the datagram into at least one fragment, the operating sys-

10   tem further comprising a virtual interface process that associates the fragment to an un-

11   derlying link of the aggregate on the basis of an IP identifier (ID) of the datagram and a

12   number of active links of the aggregate; and

13   at least one network adapter coupled to the memory and processor that cooperates

14   with a network driver of the operating system to transmit the fragment over the associated

15   underlying link to the computer network.

1   11. (Original) Apparatus for uniformly distributing data transmitted by a server over a

2   plurality of underlying links of an aggregate within a computer network, the apparatus

3   comprising:

4   means for defining a unit of data as a datagram;

5   means for apportioning each datagram into at least one fragment at the server;

6   means for associating each fragment to an underlying link of the aggregate on the

7   basis of an Internet protocol (IP) identifier (ID) of each datagram and a number of active

8   links of the aggregate; and

9   means for transmitting the fragment over its associated underlying link from the

10   server to the computer network.

1   12. (Original) The apparatus of Claim 11 wherein the means for associating comprises

2   means for producing a result representing a remainder upon dividing the IP ID by the

3   number of active links.

13. (Original) The apparatus of Claim 12 wherein the means for associating further comprises:

      means for calculating the IP ID of each datagram in a sequential manner; and

      means for rotating the fragments of each datagram among all the underlying links to thereby ensure that all fragments having the same IP ID are provided to the same physical link of the aggregate.

14. (Original) The apparatus of Claim 11 wherein the means for associating comprises:

      means for logically combining the IP ID with a predetermined mask to produce a quantity;

      means for right shifting the quantity a predetermined number of places; and

      means for establishing a threshold at which a group of data is forwarded to each underlying link of the aggregate.

15. (Original) The apparatus of Claim 14 wherein the means for associating further comprises means for producing a result representing a remainder upon dividing the right shifted logically combined quantity IP ID and predetermined mask by the number of active links.

16. (Original) A computer readable medium containing executable program instructions for uniformly distributing data transmitted by a server over a plurality of underlying links of an aggregate within a computer network, the executable program instructions comprising program instructions for:

      defining a unit of data as a datagram;

      apportioning each datagram into at least one fragment at the server;

      associating each fragment to an underlying link of the aggregate on the basis of an Internet protocol (IP) identifier (ID) of each datagram and a number of active links of the aggregate; and

10   transmitting the fragment over its associated underlying link from the server to the

11   computer network.

1   17. (Original) The computer readable medium of Claim 16 wherein the program instruc-

2   tion for associating comprises a program instruction for producing a result representing a

3   remainder upon dividing the IP ID by the number of active links.

1   18. (Original) The computer readable medium of Claim 17 wherein the program instruc-

2   tion for associating further comprises program instructions for:

3   calculating the IP ID of each datagram in a sequential manner; and

4   rotating the fragments of each datagram among all the underlying links to thereby

5   ensure that all fragments having the same IP ID are provided to the same physical link of

6   the aggregate.

1   19. (Original) The computer readable medium of Claim 16 wherein the program instruc-

2   tion for associating comprises program instructions for:

3   logically combining the IP ID with a predetermined mask to produce a quantity;

4   right shifting the quantity a predetermined number of places; and

5   establishing a threshold at which a group of data is forwarded to each underlying

6   link of the aggregate.

1   20. (Original) The computer readable medium of Claim 19 wherein the program instruc-

2   tion for associating further comprises the program instruction for producing a result rep-

3   resenting a remainder upon dividing the right shifted logically combined quantity IP ID

4   and predetermined mask by the number of active links.